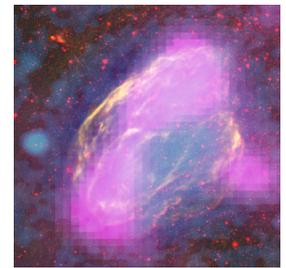
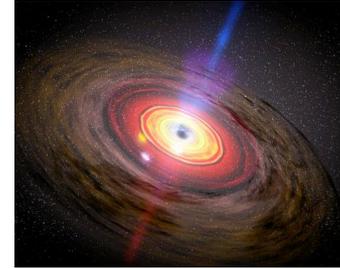
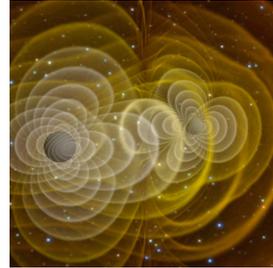
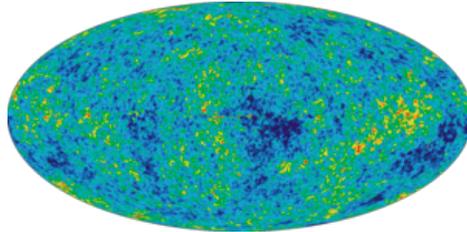
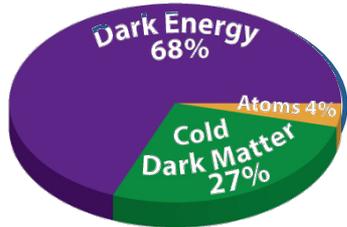


Overview

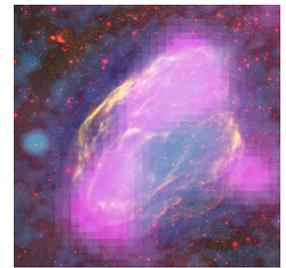
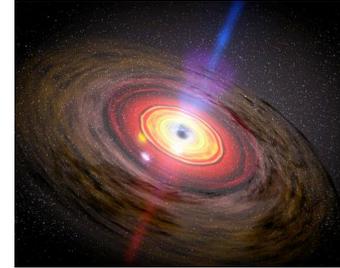
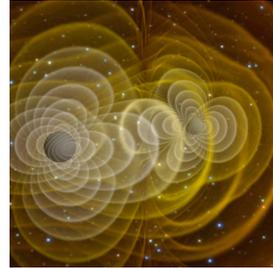
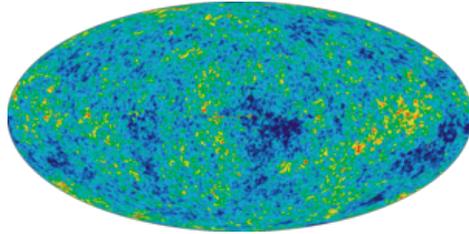
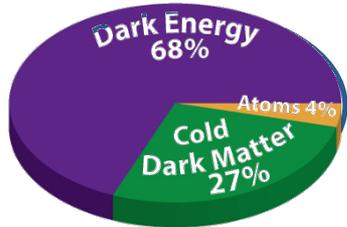
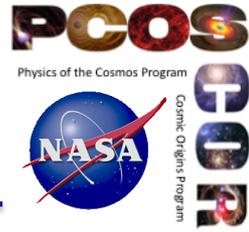
- **Introduction to PhysPAG**
- **Technology gaps assessment**
- **Preliminary discussion of CoPAG Technology Interest Group concept**
- **Highlights and near-term activities**

Physics of the Cosmos Science Objectives



- Increase our knowledge of dark energy
- Precisely measure the cosmological parameters governing the evolution of the universe and test the inflation hypothesis of the Big Bang
- Test the validity of Einstein's General Theory of Relativity and investigate the nature of spacetime
- Understand the formation and growth of massive black holes and their role in the evolution of galaxies
- Explore the behavior of matter and energy in its most extreme environments

Physics of the Cosmos Program Analysis Group



Six Science Interest Groups (SIGs):

- Cosmic Rays (Cosmic SIG)
- Cosmic Structure (CosSIG)
- Gamma-ray Astrophysics (Gamma SIG)
- Gravitational Waves (GWSIG)
- Inflation Probe (IPSIG)
- X-ray Astrophysics (X-Ray SIG)

Technology “Gaps” Assessment (1/3)

- **Physics of the Cosmos Program Office requests community input on technology development needs (‘gaps’) for strategic missions.**
- **Community and other inputs are prioritized annually by PCOS Technology Management Board**
 - Prioritization guides selection of projects funded by the Strategic Astrophysics Technology call
- **PhysPAG is asked for support in refining (not prioritizing) community input. Charge to PhysPAG:**
 - Consolidate community input
 - Refine/clarify descriptions
 - Add missing gaps
 - Identify gaps not relevant to Strategic Missions, viz., those prioritized by Decadal Survey and/or identified in Astrophysics Strategic Plan, viz.
 - Athena, HabEx, Inflation Probe, LISA, LUVOIR, Lynx, OST

Technology “Gaps” Assessment (2/3)

- PhysPAG EC recommendations to PCOS Program Office**

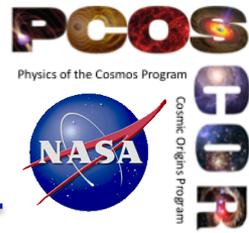
Relevant Mission	Total Reviewed	PhysPAG Recommendation
Inflation Probe	2	Forward all as is to TMB
LISA	7	Forward all as is to TMB
Lynx	9	4 Forward as is 2 Forward as edited 3 Consolidated
Multiple	3	2 Forward to TMB 1 consolidated
Not strategic	12	Do not forward to TMB
Total	33	

- Note: 6 of the technology needs in the ‘non-strategic’ category are relevant to Astrophysics Probe mission concepts now under study**

Technology “Gaps” Assessment (3/3)

- **PhysPAG EC is concerned by the number of submissions which were not relevant to strategic missions**
- **We therefore requested that the PCOS Technologist ensure that future calls for community input name strategic missions explicitly.**

Preliminary Review CoPAG Technology Interest Group



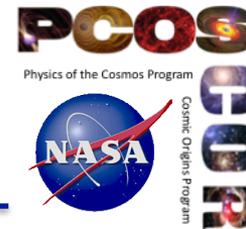
- **As recommended by APAC, PhysPAG has begun to consider applicability of CoPAG's Technology Interest Group concept to PhysPAG**
- **May 15 EC preliminary discussion suggests:**
 - There is some interest in a technology working group within PhysPAG
 - With PhysPAG's very broad range of observational techniques, the CoPAG-wide TIG model might not be easily adaptable to PhysPAG; PhysPAG's SIG-based technology assessment seems better suited.
 - SIG leaders are generally confident that they understand SIG technology needs well.

Other PhysPAG Highlights & Activities

- **NICER launched and is operating on ISS!**
- **ISS-Cream launch is imminent (10 August)!**
- **L3 Study Team**
 - LISA formally selected as L3 mission by ESA (20 June)
 - L3ST met face-to-face 20 July in Pasadena, outlining Decadal report for LISA. Report will update LISA science case & re-affirm US participation.
- **AAS/HEAD meeting August 20-24 in Sun Valley features:**
 - PCOS Town Hall (Probes, Lynx)
 - X-ray SIG meeting & Gamma-SIG town hall
 - Special sessions on LISA/GW, NICER first results, X- and Gamma-ray polarimetry, and cosmic-ray feedback

PhysPAG EC membership

New members as of January 2017



Name	Affiliation	Area of Expertise	Term Ends
M. Bautz (Chair)	MIT	X-ray astrophysics	Dec 2017
R. Bean	Cornell University	Dark energy	Dec 2017
J. Beatty	Ohio State University	Particle astrophysics	Dec 2019
J. Conklin (Vice Chair)	Univ. of Florida	Gravitational waves	Dec 2017
O. Doré	JPL	Dark energy	Dec 2017
S. Guiriec	George Washington University	Gamma-ray astrophysics	Dec 2019
K. Holley-Bockelmann	Vanderbilt University	Gravitational waves	Dec 2019
R. Kraft	SAO	X-ray astrophysics	Dec 2018
H. Krawczynski	Washington University	Gamma-ray astrophysics	Dec 2017
A. Miller	Columbia University	CMB	Dec 2017
I. Moskalenko	Stanford University	Particle astrophysics	Dec 2018
J. Tomsick	UC Berkeley	X-ray and Gamma-ray astrophysics	Dec 2019
E. Wollack	NASA/GSFC	CMB	Dec 2017